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September 13, 2005

Douglas Faulkner
Acting Assistant Secretary for Energy Efficiency and Renewable Energy
United States Department of Energy
Section 327 Petitions, Appliance Efficiency Standards
Forrestal Building
1000 Independence Avenue, SW
Washington, D.C. 20585

Petition to Exempt from Preemption
California's Water Conservation Standards for Residential Clothes Washers

Dear Mr. Faulkner,

Pursuant to 42 U.S.C. section 6297(d) and 10 C.F.R. Part 430, Subpart D, the California Energy Commission submits the enclosed petition for exemption from federal preemption of California's water conservation standards for residential clothes washers. An original and four copies of the Petition are enclosed, along with one copy of California's water plan. Please return one file-stamped copy of the Petition in the enclosed stamped, self-addressed envelope.

Thank you for your assistance.

Sincerely,

/s/

Jonathan Blees
Assistant Chief Counsel

cc: Charles A. Samuels
General Counsel, Association of Home Appliance Manufacturers
Mintz, Levin, Cohn, Ferris, Glovsky, and Popeo, PC
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UNITED STATES DEPARTMENT OF ENERGY

PETITION TO EXEMPT FROM PREEMPTION CALIFORNIA'S WATER EFFICIENCY STANDARDS FOR RESIDENTIAL CLOTHES WASHERS

California Energy Commission

September 2005

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I. Introduction and Summary

The California State Energy Resources Conservation and Development Commission ("Energy Commission," "Commission," or "CEC") petitions the Secretary of the United States Department of Energy ("DOE") for a rule exempting from preemption California's water efficiency regulations for residential clothes washers ("the standards"). This Petition is submitted pursuant to 42 U.S.C. section 6297(d) and 10 C.F.R. Part 430, Subpart D.

California has a persistent water crisis. Water demand grows inexorably, as California's population is expected to increase by nearly 50 percent in the next three decades. At the same time, water supplies are dwindling: every major water supply source for the state – from the Klamath and Trinity Rivers in the north, to the Sacramento-San Joaquin Rivers and Delta in the Central Valley, to the Mono Lake and Owens River system in the Eastern Sierra, to the Colorado River, with its five-year record-breaking drought, in the South – are over-appropriated. And the state's groundwater basins are severely overdrafted. In every case, the state is currently developing ways to extract less from these systems to comply with legal requirements. To make matters worse, most of the State's population lives long distances from major water supplies, which results in costs for water pumping and treatment that are double the rest of the country's.

Thus there is a compelling need for cost-effective water conservation in California. In an effort to improve efficiency (of both water and energy use), reduce demand, stretch supplies, minimize costs, and ameliorate environmental impacts, state and local water agencies have for decades actively pursued water efficiency for residential, commercial, industrial, and agricultural customers. Indeed, conservation and efficiency are the cornerstones of California's water policy. Yet funds are limited, and most of the "low-hanging fruit" opportunities for savings have been achieved.

As a key element in the state's efforts to promote water efficiency, the California Legislature has *required* the Commission to establish water efficiency standards for residential clothes washers. In so doing the Legislature declared that "a significant portion of urban water demand in the state is for residential clothes washers" and that "water conservation is a proven tool that will make the most effective use of the

state's limited water supply, and will conserve energy."[1] The Commission has responded by adopting the standards that are at issue in this Petition.

The standards are in two tiers: Tier 1 is scheduled to go into effect in 2007, and Tier 2 in 2010. The Tier 2 standards will save each washing machine purchaser more than $100 in water and energy costs over the life of the appliance. For the entire State, once the Tier 2 standards are fully implemented, every year they will save almost as much water as is consumed annually in the City of San Diego (the second largest city in California and the seventh largest city in the country[2]). Thus, as this Petition demonstrates, the standards meet the criteria for an exemption (or "waiver") from preemption that are established in 42 U.S.C. section 6297(d)(1)(B)-(C): the state has "unusual and compelling" interests in seeing the standards take effect. In addition, although States do not need to address the matters set forth in 42 U.S.C. sections 6297(d)(3) and (4), on potential impacts to industry and consumers (because the burden of proof on those matters is on potential opponents of a waiver), the Petition presents a summary of those matters: the standards' great benefits will be achieved without any significant impacts on the clothes washer industry or on the consumer-usefulness of the appliances.

II. Material Required by 10 C.F.R. Sections 430.41(a)(1)(i)-(iv)

(i) The name, address, and telephone number of the petitioner are:

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(ii) The regulations for which an exemption from preemption is sought are contained in California Code of Regulations, title 20, section 1605.2(p)(1), and they read as follows:

[1] California Assembly Bill 1561 (Kelley), Chapter 421, Statutes of 2002, enacting California Public Resources Code section 25402(e)(1).

[2] www.census.gov/statab/ccdb/cit1020r.txt.

(1) **Water Efficiency Standards for Residential Clothes Washers.**

The water factor of clothes washers that are consumer products shall be no greater than the applicable values shown in Table P-3.

Table P-3
Water Efficiency Standards for Clothes Washers

Appliance	***Maximum Water Factor (Gallons/cubic foot)***	
	Effective January 1, 2007	***Effective January 1, 2010***
Top-loading clothes washers	8.5	6.0
Front-loading clothes washers	8.5	6.0

Because top-loading and front-loading washers are quite similar, this Petition generally treats the 2007 standards as a single standard (i.e., top-loading and front-loading together), and also treats the 2010 standards as a single standard.

(iii) A copy of the State's water plan is being filed simultaneously with this Petition.[3]

[3] California's Department of Water Resources ("DWR") is responsible for adopting the State's Water Plan. (See California Water Code section 10004.) The statute refers to "Bulletins" Nos. 1, 2, 3 and "amendments, supplements, and additions" thereto. (California Water Code section 10004(a).) "In 1957, [DWR] published Bulletin 3, the *California Water Plan*. Bulletin 3 was followed by the Bulletin 160 series, published six times between 1966 and 1993, updating the *California Water Plan*. A 1991 amendment to the California Water Code [in section 10004(b)(1)] directed [DWR] to update the plan every five years. Bulletin 160-98 [adopted in 1998] is the latest in the series." (DWR, *The California Water Plan Update: Bulletin 160-98* ("1998 California Water Plan"), Executive Summary, p. ES1-1. There has not been an update since then. Pursuant to California Water Code section 10004(b)(3), DWR published its "preliminary draft" of the 2005 water plan update in April 2005. (DWR, *California Water Plan Update Bulletin 160-05: Public*

(iv) The types or classes of covered product for which an exemption from preemption is sought are: all types and classes of clothes washers that are covered products, including but not necessarily limited to –

Compact and Standard;
Top-Loading and Front-Loading;
Automatic and Semi-Automatic; and
Suds-Saving and Non-Suds-Saving.

This Petition uses the term "residential clothes washers" or "RCW" to refer to all clothes washers that are "covered products" under the National Appliance Energy Conservation Act of 1987.

III. California's "Unusual and Compelling" Water and Energy Interests

In order to obtain a waiver of preemption for an appliance efficiency regulation that is applicable to a federally-covered appliance, the state must establish that the standard "is needed to meet unusual and compelling State or local energy or water interests."[4] Such interests are those that:

> (i) are substantially different in nature or magnitude than those prevailing in the United States generally; and
>
> (ii) are such that the costs, benefits, burdens, and reliability of energy or water savings resulting from the State regulation make such regulation preferable or necessary when measured against the costs, benefits, burdens, and reliability of alternative approaches to energy or water savings or production, including reliance on reasonably

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Review Draft (April 2005) ("2005 Draft California Water Plan"). The 2005 Draft California Water Plan constitutes DWR's formal proposals for adoption as the final 2005 California Water Plan.

This Petition cites analyses from both the 1998 California Water Plan and the 2005 Draft California Water Plan, and a copy of each is being filed with this Petition. Although the 2005 Draft Plan contains important revisions and updates to the material in the 1998 Plan, the fundamental message is the same: all reasonable forecasts show that California needs more water than the available and foreseeable supplies can provide, and conservation of water and efficient water use are vital parts of California's water policy.

[4] 42 U.S.C. section 6297(d)(1)(B).

predictable market-induced improvements in efficiency of all products subject to the State regulation.[5]

This part of the Petition demonstrates that all of these requirements are met. California's water interests (and associated energy interests) are different in both nature and magnitude than those prevailing in the United States generally, and are such that the clothes washer standards are distinctly preferable to alternative approaches to water savings and production.

A. California's Water Interests

The confluence of a number of factors in California, including the largest state population in the country, rapid growth, dwindling water supplies, and the relatively long distances between supplies and population centers, creates a compelling need for highly efficacious and cost-effective water conservation strategies. All feasible and economic strategies must be pursued by the State to address its needs. In an effort to control water rates, delay capital-intensive investments in expanded infrastructure, minimize environmental impacts, and manage low water supplies during droughts, water agencies at the local and state level have been actively pursing water efficiency in both urban and agricultural contexts for several decades. Water agencies have already been devoting millions of dollars each year to promotion of water-efficient clothes washers and along with energy utilities have helped to "condition" the market for high efficiency washers. Yet funds are limited, and additional strategies are needed.

1. Water Use

California is the largest state in the nation, and it will continue to grow rapidly. It is the fifth largest economy in the world.[6] Not surprisingly, California's total water (fresh and saline) withdrawals exceed all other states at 51 billion gallons per year, despite a comparatively modest per capita water use of 1,500 gallons per day (for all uses, including urban, agricultural, and industrial, and including saline withdrawals). The next highest state is Texas with 29.6 billion gallons per year (42 percent lower);

[5] 42 U.S.C. section 6297(d)(1)(C)(i)-(ii).

[6] www.lao.ca.gov/2002/cal_facts/economy_demographics.pdf.

the average state withdrawal is 8.1 billion gallons per year – less than one-sixth of California's use.[7] California uses 13 percent of the nation's water supply.[8] And the State's water use will continue to grow. With a current population of 36 million, California is expected to be home to more than 49 million people by 2025.[9] The number of new people who will join the ranks of California's population *each year* – approximately 600,000 – is more than the entire population of Wyoming. Texas, the state with the second highest expected population growth during that time, is expected to add less than half of California's increased population; overall, the median growth rate for all states is expected to be approximately 20 percent through 2025, well under California's projected growth rate.[10] By 2030, California's urban water demand alone could increase by almost 6 million acre feet per year[11], compared to total usage of 43 million acre-feet per year in 2000,[12] according to a resource-intensive water scenario evaluated by the State's Department of Water Resources.[13] In addition, the State will need an additional 1 million to 2 million acre-feet per year of water by 2030 just to replace groundwater overdrafts.[14]

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[7] "Estimated Use of Water in the United States in 2000-Table 2," U.S. Geological Survey Circular 1268 (released March 2004, revised April 2004, May 2004, February 2005).

[8] *Ibid.*

[9] U.S. Census Bureau, Population Division, Population Projections Branch: States, 1995 – 2025, by Paul Campbell, P25-1131, issued May 1997, p. 1 (www.census.gov/population/www/projections/stproj.html).

[10] U.S. Bureau of the Census, Population Division, PPL-47.

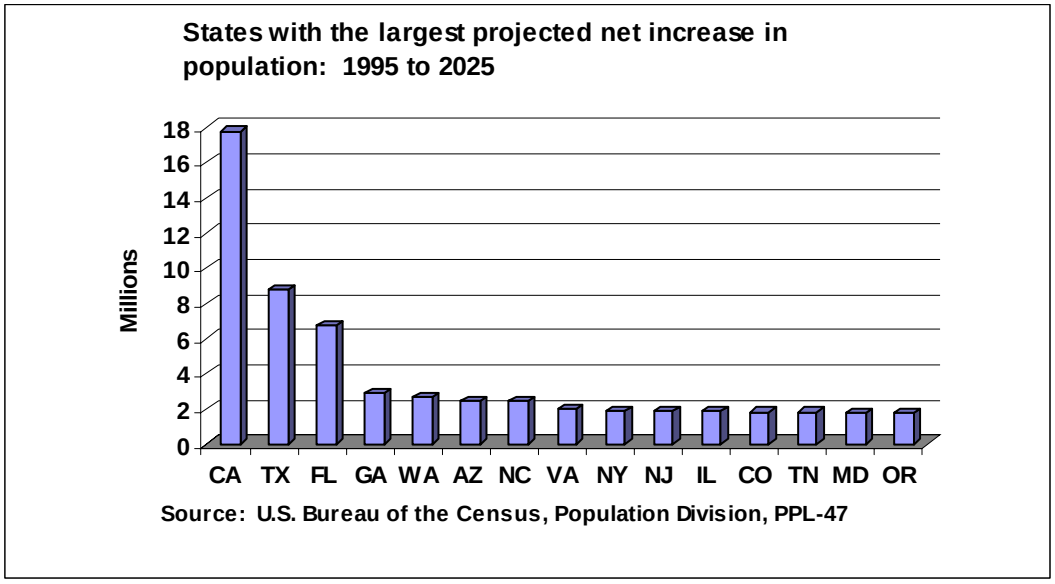
[11] 2005 Draft California Water Plan, Vol. 1, ch. 4, Fig. 4-3.

[12] "Estimated Use of Water In the United States in 2000," U.S. Geological Survey Circular 1268," (released March 2004, revised April 2004, May 2004, February 2005. An acre-foot of water – 325,900 gallons – supplies one to three average families per year.

[13] 2005 Draft California Water Plan, Vol. 1, ch. 4, p. 4-41

[14] *Id.* at p. 4-14.

Figure 1: Population Growth in the Fastest-Growing States



Of particular importance to California is its agricultural economy. Despite its dry summer climate, the State generated over $30 billion in total agricultural receipts in 2001, one-eighth of the total nationwide receipts and more than the combined receipts from Texas and Iowa, which are the second and third largest agricultural producers in the U.S. The State produces half the nation's fruits, nuts, and vegetables.[15] California has the largest proportion of irrigated land to total farmed acreage (32 percent), as well as the highest amount of irrigated farm land of any state in the country – 8.7 million acres, which is 16 percent of the nation's.[16] The continued reliability of the California water supply is key to both the California economy and to feeding the nation.

The 1998 California Water Plan contains the following forecasts of water demand and supplies, one with then-existing supplies and conservation actions, and another with additional supplies and conservation actions considered likely to be implemented):[17]

[15] USDA, National Agricultural Statistics Service (http://151.121.3.33:8080/Census/index.html).

[16] *Ibid.*

[17] 1998 California Water Plan, Executive Summary, pp. ES5-2, ES5-11.

Table 1
California Water Budget with Existing Facilities and Programs (maf)[18]

	1995		*2020*	
	Average	*Drought*	*Average*	*Drought*
Water Use				
Urban	8.8	9.0	12.0	12.4
Agricultural	33.8	34.5	31.5	32.3
Environmental	36.9	21.2	37.0	21.3
Total	**79.5**	**64.7**	**80.5**	**66.0**
Supplies				
Surface Water	65.1	43.5	65.0	43.4
Groundwater	12.5	15.8	12.7	16.0
Recycled and Desalted	0.3	0.3	0.4	0.4
Total	**77.9**	**59.6**	**78.1**	**59.8**
Shortage	**1.6**	**5.1**	**2.4**	**6.2**

Table 2
California Water Budget with Options Likely To Be Implemented (maf)

	1995		*2020*	
	Average	*Drought*	*Average*	*Drought*
Water Use				
Urban	8.8	9.0	11.8	12.1
Agricultural	33.8	34.5	31.3	32.1
Environmental	36.9	21.2	37.0	21.3
Total	**79.5**	**64.7**	**80.1**	**65.5**
Supplies				
Surface Water	65.1	43.5	66.4	45.4
Groundwater	12.5	15.8	12.7	16.5
Recycled and Desalted	0.3	0.3	0.8	0.9
Total	**77.9**	**59.6**	**79.9**	**62.8**
Shortage	**1.6**	**5.1**	**0.2**	**2.7**

[18] "Maf" = million acre-feet = 325,900,000,000 gallons.

For purposes of this Petition, urban water use is the most important, because it is that use that would be reduced by the California standards.

The 2005 State Water Plan is a strategic planning document produced in a collaborative process in which the State's Department of Water Resources worked with a 65-member Advisory Committee, a 350-member extended review forum, and over 2,000 interested members of the public. It contains state and regional water portfolios that cover the entire hydrologic cycle and that consist of more than 80 categories of water use, supply, and management (as opposed to about 35 categories in previous water plans). Central to the 2005 Draft are three possible future water scenarios for the State, titled "Current Trends," "Less Resource Intensive," and "More Resource Intensive." All three scenarios describe potential water demands in 2030 "without additional demand management beyond current policies" (i.e., without the RCW standards).[19]

Although the three scenarios were developed in acknowledgment of the inherent uncertainties facing California in the next 25 years, all three agree on one fact of crucial significance for this Petition: annual urban water use will increase significantly in the next 25 years: by approximately 3,000,000 acre-feet in the "Current Trends" Scenario, approximately 1,800,000 acre-feet in the "Less Resource Intensive Scenario," and almost 6,000,000 acre-feet in the "More Resource Intensive" scenario.[20] (These estimates are quite consistent with the forecasts in the 1998 California Water Plan, which shows annual increases in urban water use of 3.2 and 3.4 million acre-feet under normal and drought conditions in a scenario that could be characterized as business as usual, and 3.0 and 3.1 million acre-feet in a scenario in which reasonable additional supply and conservation options were achieved. (See Tables 1 and 2, at page 8 above.) Moreover, in all three scenarios, an additional 1 to 2 million acre-feet per year are needed to eliminate statewide groundwater overdraft.[21]

Moreover, regardless of which scenario turns out to be most accurate, additional conservation and efficiency measures are necessary. This is particularly important

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[19] 2005 Draft California Water Plan, vol. 1, ch. 4, p. 4-16.

[20] 2005 Draft California Water Plan, vol. 1, ch. 4, p. 4-41.

[21] *Ibid.*; see also *id.*, Vol. 4-Reference Guide, Data and Analytical Tools, Quantified Scenarios of 2030 Water Demand (by David Groves, Pardee RAND Graduate School and Scott Matyac and Tom Hawkins, DWR).

because water supplies are often not fungible: it can be very difficult, for example, to transfer savings in the agricultural sector to the urban sector. As the 2005 Draft Plan states:

> [A]vailable supplies in one part of the state cannot necessarily be used to meet rising demands in other parts. . . . . Moreover, the challenges of flood management, protecting water quality, and managing water systems to help restore the environment will all require California's water managers to develop strong water plans to go well beyond just meeting water demand increases in average years. [¶] If realized, the greater urban water demand predicted under all three plausible scenarios would present significant challenges to water planners. . . . . Although there may be commensurate reductions in the agriculture sector, much of this demand reduction would occur in the Central Valley; whereas, much of the additional urban demand would be in the southern part of the state. The ability to transfer water from the Central Valley to Southern California could be constrained by existing conveyance facilities, area-of-origin issues, environmental impacts, and other third-party effects. This fact underscores the need for strong integrated regional water management plans supported by strong statewide water management systems.[22]

In sum, as the 1998 Water Plan states, "[t]he magnitude of potential shortages, especially drought year shortages, demonstrates the urgency of taking action."[23] And what is the most important action that the State needs to take? The answer is clear: improved water efficiency. The 2005 Draft Water Plan shows that increased urban water use efficiency has the greatest potential of all eight major water resource management strategies available to California (see pp. 15-16 below).[24]

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[22] 2005 Draft California Water Plan, vol. 1, ch. 4, pp. 4-15 – 4-16.

[23] 1998 California Water Plan, Executive Summary, p. ES5-13.

[24] 2005 Draft California Water Plan, vol. 1, ch. 1, p. 1-15.

2. Water Supplies

California's water supply situation is unique in scope and scale compared to other states or even the world. Throughout California's development, extraordinarily large investments in water system infrastructure, supported by local, regional, state, and federal consumers and taxpayers, have produced an unprecedented array of reservoirs, levees, aqueducts, pumping stations and related transportation facilities. No other state compares. Tens of billions of dollars have been expended on this massive water network.[25] Yet even this extraordinary expenditure is not enough: "Although these state, federal, and local projects now serve as the backbone of California water management, they cannot provide for our growing population, changing agricultural production patterns, and environmental needs."[26]

Potential new supplies will provide little additional water and are expensive, and even existing supplies are "drying up." Five years of record-breaking drought along the Colorado River, hardly dented by this year's wet winter, have resulted in flows among the lowest in the past 500 years and have drained Lake Powell of more than 60 percent of its water. Lake Mead, the biggest reservoir in North America and supplier of water to Southern California, Arizona, and Las Vegas, is little more than half full. At Lake Mead's northern end, the foundations of St. Thomas, a little town demolished in the 1930s to make way for the reservoir, have reemerged. The 1,450-mile-long river that greens 3.5 million acres of farm and range land and helps feed the faucets of 25 million people may within a few years lack the water to quench the West's great thirst. Thus for the first time ever, the seven states that rely on the Colorado, especially California, are confronting the possibility of a serious shortage. Even if the Colorado River returns to its full flows, California is legally required to reduce the amount it takes from the River from 5.5 million acre feet per year to 4.4 million acre feet by the year 2015, under the terms of the Colorado River Agreement.[27] This amount represents a 20 percent reduction in supply—roughly half of the surface water demand for Southern California.[28] Moreover, the

[25] Oral Interview, October 18, 2004, with Steve Macaulay, Retired Chief Deputy Director, Department of Water Resources.

[26] 2005 Draft California Water Plan, vol. 1, ch. 1, p. 1-10.

[27] Colorado River Water Delivery Agreement: Federal Quantification Settlement Agreement, October 20, 2003.

[28] *Ibid*.

protracted drought on the Colorado River basin will, if it continues, reduce future deliveries even below that level.

Similarly, for more than a decade California's State Water Project has delivered only half its contract volumes, and it is now able to deliver, on average, only 75 percent of the amount for which it is contractually obligated.[29] Even this could well be an optimistic future scenario, given the severe environmental decline of the Bay-Delta area and the restrictions on pumping that have resulted from that decline.

Indeed, supplies are constrained all over the state. All of the state's major river systems, such as the Klamath and the Trinity, the Sacramento and the San Joaquin, and the Owens, are over-appropriated, and groundwater basins face severe overdrafts. As a result, the state is currently developing ways to extract less from all of these systems.

Moreover, California's water supplies face increased environmental challenges. Intrusion of salt water into coastal aquifers (due to over-pumping of the aquifers), increasing levels of pollution in the water table, and salinity in inland groundwater supplies due to irrigation, will all lead to increased treatment costs in the future.

Any potential new water-storage sites that are part of the California Water Plan are relatively small storage projects. Thus water efficiency, recycling, and desalination are the key to averting a water crisis in California. Since recycling and desalination are expensive and energy intensive, water use efficiency emerges as the strongest economic and environmental option.

Groundwater supplies are also a challenge. Some aquifers are currently being pumped at rates well in excess of recharge capability, which has led to land subsidence in some areas and intrusion of seawater along some coastal aquifers.[30] And recent forecasts from the National Academy of Science show the impacts of global warming putting great pressure in the existing water system infrastructure

[29] "The State Water Project Reliability Report," California Department of Water Resources, 2002, p. 13 (http://swpdelivery.water.ca.gov/SWP%20Delivery%20Reliability.final.2002.pdf).

[30] See, e.g., 1998 California Water Plan, pp. 3-51 – 3-53, 3-62; USGS, *Geohydrological Framework of Recharge and Seawater Intrusion in the Pajaro Valley, Santa Cruz and Monterey Counties, California* (2003), pp. 53, 58, 59.

over the next decades, with a potentially decreasing Sierra snowpack perhaps expanding the forecasted shortfall.[31]

3. Water Costs

California's water rates substantially exceed the national average. This is not surprising, in light of the State's vast water transportation infrastructure and the high energy costs associated with pumping and treatment (see pages 14-15 below).

DOE assessed national water and wastewater prices as part of its recent residential clothes washer rulemaking. Using 1998 survey data, DOE calculated that the average national water and wastewater rate was $2.48 per thousand gallons (in 1997 dollars, which is the equivalent of $2.88 in 2002 dollars).[32] Based on a review of "California Water Charge Survey: 2001" and "California Wastewater Charge Survey: 2002" by Black and Veatch, both of which report rates for most service areas across the State, California's Pacific Gas and Electric Company (the largest combined electricity and natural gas utility in the country) recently concluded that the current California average water rate is approximately $3.15 (in 2002 dollars).[33] Therefore, water saved in California is worth even more ($3.15 per thousand

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[31]Wilkinson, Robert C., *The Potential Consequences of Climate Variability and Change for California, The California Regional Assessment*, Report of the California Regional Assessment Group for the U.S. Global Change Research Program, National Center for Geographic Information Analysis, and the National Center for Ecological Analysis and Synthesis, University of California, Santa Barbara (sponsored by the National Science Foundation) (2002); "Emissions pathways, climate change, and impacts on California," APPLIED PHYSICAL SCIENCES / ECOLOGY , Journal of the National Academy of the Sciences. Hayhoe, K. et. al. Published online before print August 16, 2004, 10.1073/pnas.0404500101 PNAS | August 24, 2004 | vol. 101 | no. 34 | 12422-12427 OPEN ACCESS ARTICLE, http://www.pnas.org/cgi/gca?allch=&SEARCHID=1117829324567_6211&FULLTEXT=Emissions+pathways%2C+climate+change%2C+and+impacts+on+California&JOURNALCODE=&FIRSTINDEX=0&hits=10&RESULTFORMAT=&gca=pnas%3B101%2F34%2F12422&allchb=.

[32] "Final Rule Technical Support Document (TSD): Energy Efficiency Standards for Consumer Products: Clothes Washers," U.S. Department of Energy, December 2000: Appendix F, p. F-10 (www.eere.energy.gov/buildings/appliance_standards/residential/clwash_0900_r.html).

[33] Pacific Gas and Electric Company, 2003, "Codes and Standards Enhancement Initiative for PY2003: Title 20 Standards Development Draft Analysis of Standards options for Residential Clothes Washers" (CEC Docket No. 03-AAER-01 (RCW)).

gallons) than water saved in the United States generally ($2.88 per thousand gallons).

Moreover, the gap between the water rates in California and in the rest of the country is likely to increase. In many areas of the State, surface water and groundwater are being impaired by natural and human-made contaminants that increase treatment costs and reduce the available supplies (thereby further exacerbating costs).[34] The American Water Works Association "MainStream" newsletter reports that, while not alone with the problem, California is where "the highest concentrations of MTBE are reported . . . ."[35] One water utility severely impacted by MTBE-contaminated wells predicted customer rate increases of 50 percent as mitigation measures were taken.[36] Given the State's 600,000-person-per-year population growth, increasing health and environmental regulations, increasing costs for ground water and surface water pollution mitigation, expensive new supplies, and the aging water distribution infrastructure, water rate increases well in excess of inflation can be expected. All these factors suggest a future widening of the gap between California and national water rates.

4. The High Energy Intensity and Energy Costs of California's Water Supplies

California's water supplies have one of the highest embodied energy costs in the nation. "California's water systems are uniquely energy-intensive, relative to national averages, due to pumping requirements for major conveyance systems which move large volumes of water long distances and over thousands of feet in elevation lift . . . the State Water Project is the largest single user (3.7 billion kWh per year in 1995 for pumping and power plants) of electricity in the state."[37] Similarly, while DOE has calculated that the typical rural household water well in

[34] 2005 Draft California Water Plan, vol. 1, ch. 3, pp. 3-3, 3-5.

[35] AWWA MainStream, Vol. 48, No. 2, April 2004, page 3.

[36] *Ibid.*

[37] Wilkinson, Robert C., 2000. "Methodology For Analysis of The Energy Intensity of California's Water Systems, and an Assessment of Multiple Potential Benefits Through Integrated Water-Energy Efficiency Measures," Exploratory Research Project, Ernest Orlando Lawrence Berkeley Laboratory, California Institute for Energy Efficiency.

the U.S. requires 2.61 kWh per 1,000 gallons of delivered water,[38] recent California estimates range from 4.1 kWh[39] to 6 kWh[40] per 1,000 gallons. The amount of energy required is even higher in heavily-populated Southern California, where half of the water supply comes from hundreds of miles away across mountain ranges; there, average embodied energy is 8.4 kWh per 1,000 gallons.[41] Furthermore, embodied energy in marginal water supplies are estimated at 11 kWh per 1,000 gallons.[42] Efficient use of water will therefore contribute to a substantial reduction in energy use.

B. California's Water and Energy Policies: Efficiency Is Crucial

Water efficiency is the most important tool available to California to meet its water needs. As the California Legislature declared in requiring the Energy Commission to adopt the RCW standards, "[w]ater conservation is a proven tool that will make the most effective use of the state's limited water supply, and will conserve energy."[43] Indeed, "[i]t is . . . the policy of the state and the intent of the Legislature to promote all feasible means of . . . water conservation . . . ."[44]

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[38] "Final Rule Technical Support Document (TSD): Energy Efficiency Standards for Consumer Products: Clothes Washers" U.S. Department of Energy, Washington, DC 20585, December 2000, Appendix F, Water and Wastewater Prices, p. F-7.

[39] Pacific Gas and Electric Company, 2003, "Codes and Standards Enhancement Initiative for PY2003: Title 20 Standards Development Draft Analysis of Standards options for Residential Clothes Washers" (CEC Docket No. 03-AAER-01 (RCW)).

[40] "Comments of PG&E Regarding Proposed Residential Clothes Washer Water Factor Standards" December 2, 2003, p. 13 (CEC Docket No. 03-AAER-01 (RCW)).

[41] Wilkinson, Robert C., 2000. "Methodology For Analysis of The Energy Intensity of California's Water Systems, and an Assessment of Multiple Potential Benefits Through Integrated Water-Energy Efficiency Measures," Exploratory Research Project, Ernest Orlando Lawrence Berkeley Laboratory, California Institute for Energy Efficiency.

[42] *Ibid.* These figures have already accounted for hydro generation built into the water delivery system.

[43] California Assembly Bill 1561 (Kelley), Chapter 421, Statutes of 2002, enacting California Public Resources Code section 25402(e)(1).

[46] California Public Resources Code section 25008.

California's water planners are working hard to implement the Legislature's directive that "all feasible means" of water efficiency be implemented. For example, the 2005 Draft California Water Plan states:

> To minimize the impacts of water management on California's natural environment and ensure that our state continues to have the water supplies it needs, Californians must **use water efficiently** to maximum utility from existing supplies. Californians are already leaders in water use efficiency measures . . . . Because competition for California's limited water resources is growing, we must continue these efforts and be innovative in our pursuit of efficiency. Water use efficiency will continue to be a primary way that we meet increased demand. . . . . [¶] As California's population grows . . . there is bound to be an effect on California's environment. By wringing every bit of utility from every drop of water, Californians can stretch water supplies and help ensure continued economic, social, and environmental health. . . . . [¶] Water conservation has become a viable long-term supply option because it saves considerable capital and operating costs for utilities and consumers, avoids environmental degradation, and creates multiple benefits.[45]

The importance of these policies is based on the water opportunities available to California. In the 2005 Draft California Water Plan, urban water use efficiency (including high-efficiency clothes washers) provides more supply than any of the other seven "resource management choices" available to help meet water needs: around 2.4 million acre-feet per year ("mafy"), compared to less than 1.5 mafy from recycling of municipal water, about 1.0 mafy from surface storage, less than 1.0 mafy from agricultural water use efficiency, and about 0.5 mafy from desalination.[46]

California's water suppliers are acting on the knowledge that efficiency is the first choice. For example:

Urban Conservation MOU. Most urban water suppliers are signatories to the Memorandum of Understanding Regarding Water Conservation in California,

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[47] 2005 Draft California Water Plan, vol. 1, ch. 1, pp. 1-7, 1-15 (emphasis in original).

[46] 2005 Draft California Water Plan, vol. 1, ch. 1, p. 1-15.

which obligates them to implement fourteen Best Management Practices ("BMPs") for Water Efficiency.[47] The BMPs are identical to the demand management options of the water management plans that virtually all California urban water suppliers must prepare and submit to the State's Department of Water Resources.[48] The California Urban Water Conservation Council ("CUWCC"), which includes more than 140 water agencies, regularly revises the BMPs in order to meet changing conditions. One of the BMPs is specifically for High Efficiency Clothes Washers. Combined, the BMPs are estimated to save approximately 770,000 acre-feet of water annually by the year 2010.[49]

California Bay Delta Authority. The BMPs are also required by California's Bay-Delta Program Plan, a joint state-federal effort to develop and implement a long-term comprehensive plan that will restore ecological health and improve water management for the Bay-Delta Estuary. Two-thirds of California's population (about 22 million people) drinks water that flows through the Estuary, more than 2.3 million acre-feet annually.[50] The Bay-Delta Program Plan is a balanced, comprehensive approach to reduce conflicts over limited water supplies. It has eleven major program elements, one of which is water use efficiency. Urban water suppliers must be "certified" that they are incorporating all of the elements into their supply planning.[51]

In this context, the California RCW standards are critical. Clothes washers account for about 22 percent of the water use in the typical home.[52] And, as we will discuss in more detail at pages 20-26 below, the California RCW standards alone will save 204,387 acre-feet per year when fully implemented – more than 8 percent of the

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[47] See 2005 Draft California Water Plan, vol. 2, ch. 2, p. 22-1.

[48] See California Water Code sections 10610 - 10657.

[49] California Urban Water Conservation Council, Memorandum of Understanding Regarding Water Conservation in California (Dec. 11, 1991; revised March 10, 2004) (www.cuwcc.org/uploads/memorandum/MOU_04_03_10_with_Section_4_Amendments.pdf).

[50] "Rivers Run Through It: Facts about the Sacramento-San Joaquin Bay Delta", June 2000, California Bay-Delta Program and U.S. Bureau of Reclamation.

[51] CALFED Record of Decision, California Bay-Delta Program, August 28, 2000.

[52] AWWA, Residential End Uses of Water (1999); see also www.h2ouse.org/tour/laundry.cfm > "clothes washer" > "water use."

total potential urban water use efficiency savings noted in the 2005 Draft California Water Plan and more than 25 percent of the savings expected from the Urban Conservation MOU (see previous page).

The California RCW standards are also critical for carrying out the State's *energy* policies, which, like the state's water policies, focus on efficiency first. As the Legislature has stated:

> It is . . . the policy of the state and the intent of the Legislature to employ a range of measures to reduce wasteful, uneconomical, and unnecessary uses of energy, thereby reducing the rate of growth of energy consumption, prudently conserve energy resources, and assure statewide environmental, public safety, and land use goals.
>
> It is further the policy of the state and the intent of the Legislature to promote all feasible means of energy . . . conservation . . . .[53]

The state's energy agencies are vigorously carrying out these policies. For example, the Energy Commission is responsible for publishing, every two years, an Integrated Energy Policy Report ("IEPR") that, upon approval by the Governor, becomes the Governor's official statement of energy policy.[54] The most recent IEPR emphasizes the critical need for additional energy efficiency in order to meet the state's electricity and natural gas needs, and it specifically recognizes the important connection between energy use and water delivery, treatment, and consumption.[55] It states that "California's building and appliance standards are the most cost-effective means of achieving energy efficiency in the state," and notes that by 2013 the cumulative savings from the standards will be 79 billion dollars.[56]

Similarly, the State's Energy Action Plan, jointly adopted by the Energy Commission, the California Public Utilities Commission ("CPUC"), and the California Consumer Power Conservation and Financing Authority in 2003, establishes a "loading order" of energy resources "that will guide decisions made by

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[53] California Public Resources Code sections 25007 - 25008.

[54] California Public Resources Code sections 25302 - 25307.

[55] www.energy.ca.gov/reports/100-03-019F.PDF, pp. vii-viii, 2.

[56] *Id.* p. 10.

the agencies jointly and singly." When new energy resources are needed, the State should first "optimize all strategies for increasing conservation and energy efficiency to minimize increases in electricity and natural gas demand." Second in the loading order are renewable resources and distributed generation, with "clean, fossil fuel, central-station generation" third.[57] The loading order was endorsed by Governor Schwarzenegger in an April 28, 2004 letter to the CPUC.[58]

In sum, water and energy efficiency are vital tools for meeting the needs of California's citizens and businesses. Thus for over a decade California water agencies have been committed to promoting high-water-efficiency clothes washers. In addition to the ratepayer-funded rebates that have been offered to consumers by energy and water utilities for purchase of high efficiency washing machines, the State itself has funded over 200,000 additional rebates. The very significant financial commitment by the water agencies and the State shows the importance of the clothes washer water savings to California's water supply. But despite those advances, additional efficiencies will be necessary. With California's population expected to grow by over 600,000 people per year, implementing all feasible, cost-effective water and energy saving strategies such as the RCW standards are essential to maintaining a secure and sufficient water supply in California.

C. The Water, Energy, Environmental, and Economic Benefits of the California Standards

The following tables show the savings that will result from the California RCW standards, if DOE grants this Petition: gallons of water, kilowatt-hours of electricity, and therms of natural gas, as well as savings on utility bills. For individual consumers, the tables show savings both annually and cumulatively over the expected 14-year lifetime of a washing machine. For the state as a whole, the tables show annual savings in the first year of the standards, and annual savings once the entire stock of washing machines complies with the standards.

All of the economic assumptions and data inputs used in this analysis were vigorously tested in the Commission's public rulemaking process that led to the adoption of the standards. Perhaps the most important driver of the economic analysis is the estimate of the increased first cost of washing machines that would

[57] www.energy.ca.gov/energy_action_plan/2003-05-08_ACTION_PLAN.doc.

[58] www.energy.ca.gov/reports/CEC-100-2004-006/CEC-100-2004-006CMF.PDF, p. 1.

result from the standards. We estimate the incremental cost of the 8.5 WF standards to be $66.44; for the 6.0 WF standards, the incremental cost is $130.18. These estimates are consistent with DOE's most recent estimate of $150 in the federal RCW rulemaking:

> In order to meet the 2007 standard, the Department estimates that the price of a washer will be $670, an increase of $249. This price increase will be offset by an annual savings of about $48. It should be noted that DOE based its estimate of the incremental retail cost for the 2007 standards on manufacturer cost estimates for horizontal-axis machines submitted to the Department in 1997. New cost information derived from vertical axis washers now in the market that meet the 2007 standards indicate that the incremental prices could be substantially less. Based on the Department's analysis, the incremental price of these high-efficiency vertical-axis washers would be approximately $150[assumes a $75 incremental manufacturer cost and a total mark-up of 1.99]. [59]

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[59] 66 Federal Register 3315 (Jan. 12, 2001).

Assumptions and Inputs:
Cost of Base Case (10.5 WF) RCW: $ 550 Cost of 8.5 WF RCW: $ 616.44 Cost of 6.0 WF RCW: $ 680.18
Number of Wash Loads Per Year: 392 Average Life of RCW: 14 years
Water Price: $ 0.0032 per gallon Electricity Price:$ 0.115 per kWh Gas Price: $ 0.63 per therm
Electricity Savings for 8.5 WF standard:
Consumer Savings of 13 kWh/year/machine
Statewide Savings includes additional 14.5 kWh/year/machine for water pumping and water treatment
Electricity Savings for 6.0 WF standard:
Consumer Savings of 18 kWh/year/machine
Statewide Savings includes additional 21.7 kWh/year/machine for water pumping and water treatment
Discount Rate: 3 percent Annual California Sales of RCW: 900,000 units

TABLE 3: SAVINGS FOR THE INDIVIDUAL CALIFORNIA CONSUMER: 6.0 WF STANDARDS (EFFECTIVE 2010)

	Water Savings (gallons)	Electricity Savings (kWh)	Gas Savings (therms)	Water $ Savings	Electricity $ Savings	Gas $ Savings	Total $ Savings	Increased First Cost	Net $ Savings (Total Savings Minus Increased First Cost)
Annual Savings	**5,292**	**18**	**4**	**$ 16.93**	**$ 2.07**	**$ 2.52**	**$ 21.52**	**NA**	**NA**
Savings During 14-Year Appliance Lifetime ($ in present value)	**74,088**	**252**	**56**	**$ 191.00**	**$ 23.28**	**$ 28.47**	**$ 242.85**	**$ 130.18**	**$ 112.67**

TABLE 4: STATEWIDE SAVINGS: 6.0 WF STANDARDS (EFFECTIVE 2010)

	Water Savings (gallons)	Electricity Savings (gWh)	Gas Savings (therms)	Water $ Savings	Electricity $ Savings	Gas $ Savings	All $ Savings
Annual Savings: First Year of Standards	**4.76 billion**	**16.2 (washing machine)** **35.73 (washing machine plus water pumping and treatment)**	**3.6 million**	**$ 15.23 million**	**$ 1.86 million (washing machine)** **$ 4.06 million (washing machine plus water pumping and treatment)**	**$ 2.3 million**	**$ 19.39 million (washing machine)** **$ 21.59 million (washing machine plus water pumping and treatment)**
Annual Savings: After Entire Stock Has Been Replaced	**66.7 billion**	**226.8 (washing machine)** **500.2 (washing machine plus water pumping and treatment)**	**50.4 million**	**$ 172 million**	**$ 21 million (washing machine)** **$ 45.1 million (washing machine plus water pumping and treatment)**	**$ 26 million**	**$ 219.1 million (washing machine)** **$ 243.9 million (washing machine plus water pumping and treatment)**

TABLE 5: SAVINGS FOR THE INDIVIDUAL CALIFORNIA CONSUMER: 8.5 WF STANDARDS (EFFECTIVE 2007)

	Water Savings (gallons)	Electricity Savings (kWh)	Gas Savings (therms)	Water $ Savings	Electricity $ Savings	Gas $ Savings	Total $ Savings	Increased First Cost	Net $ Savings (Total Savings Minus Increased First Cost)
Annual Savings	**2,352**	**13**	**3**	**$ 7.53**	**$ 1.49**	**$ 1.89**	**$ 10.91**	**NA**	**NA**
Savings During 14-Year Appliance Lifetime ($ in present value)	**32,928**	**182**	**42**	**$ 85.02**	**$ 16.89**	**$ 21.35**	**$ 123.26**	**$66.44**	**$ 56.82**

TABLE 6: STATEWIDE SAVINGS: 8.5 WF STANDARDS (EFFECTIVE 2010)

	Water Savings (gallons)	Electricity Savings (gWh)	Gas Savings (therms)	Water $ Savings	Electricity $ Savings	Gas $ Savings	All $ Savings
Annual Savings: First Year of Standards	**2.1 billion**	**11.7 (washing machine)** **20.37 (washing machine plus water pumping and treatment)**	**2.7 million**	**$ 6.72 million**	**$ 1.35 million (washing machine)** **$ 2.8 million (washing machine plus water pumping and treatment)**	**$ 1.7 million**	**$ 9.77 million (washing machine)** **$ 11.22 million (washing machine plus water pumping and treatment)**
Annual Savings: After Entire Stock Has Been Replaced	**29.4 billion**	**163.8 (washing machine)** **285.18 (washing machine plus water pumping and treatment)**	**37.8 million**	**$ 75.9 million**	**$ 15.25 million (washing machine)** **$ 31.6 million (washing machine plus water pumping and treatment)**	**$ 19.2 million**	**$ 110.36 million (washing machine)** **$ 126.7 million (washing machine plus water pumping and treatment)**

These savings are impressive. For individual consumers, the 6.0 WF standards will save approximately 11 percent of a typical household's water use. In addition, the simple payback for both the 8.5 WF and the 6.0 WF standards is approximately six years – that is, the initial investment in the more efficient RCW is repaid in six years. The lifetime of a typical RCW is fourteen years, so consumers will be much better off financially as a result of the standards.

On a statewide basis, the total annual water savings that will result once the 6.0 WF standards have reached their full effect – that is, after all stock has been replaced with complying equipment – will be approximately 204,387 acre-feet per year. This is equivalent to the amount of water used by the entire City of San Diego, the second-largest city in California and the seventh largest city in the country.[60] Another way of looking at this is that the annual water savings from the fully-implemented 6.0 WF standards would be enough to supply the needs of over 425,000 California households.[61]

To put the savings from the standards into the context of other water-savings efforts, the 2005 Draft California Water Plan estimates that up to 2.4 million acre-feet a year of water savings are potentially available from *all* Urban Water Use Efficiency efforts.[62] The 6.0 WF standard will, when fully implemented, provide over 8 percent of those savings. That is a considerable accomplishment for standards for a single appliance.

Moreover, even though the standards were adopted primarily as a water-saving measure, the energy savings will also be significant. A fully-implemented 8.5 WF standard will save as much energy as the annual usage for approximately 50,000 California homes, and the 6.0 WF will save the equivalent of the annual energy use of approximately 85,000 California homes.[63] Thus, at minimal cost, the standards

[60] www.census.gov/statab/ccdb/cit1020r.txt.

[61] 204,387 acre-feet per year saved, divided by a typical California water use per household of 156,000 gallons per household per year as reported by Scott Matyac, Senior Land and Water Use Scientist, Department of Water Resources, in November 2004, based on unpublished water use and demographic data compiled for the 2005 Draft California Water Plan.

[62] 2005 Draft California Water Plan, vol. 1, Ch. 1, p. 1-15.

[63] www.census.gov/popest/states/NST-EST2003-ann-est.html, and www.eia.doe.gov/emeu/states/sep_use/total/pdf/use_all.pdf.

will free up large energy and water resources that can be conserved or used more productively in the California economy.

Finally, in addition to the direct savings in water and energy costs, the standards will, by reducing demand, contribute to long-term reductions in the rates that water and energy utilities would otherwise have to charge. Reduced water and energy demand will also help defer capital investments by utilities, and will lessen the frequency and severity of possible future water and energy shortages.

D. Alternatives to the Standards

As we noted above, in order to obtain a preemption waiver, a state must demonstrate that its interests:

> (i) are substantially different in nature or magnitude than those prevailing in the United States generally; and
>
> (ii) are such that the costs, benefits, burdens, and reliability of energy or water savings resulting from the State regulation make such regulation preferable or necessary when measured against the costs, benefits, burdens, and reliability of alternative approaches to energy or water savings or production, including reliance on reasonably predictable market-induced improvements in efficiency of all products subject to the State regulation.[64]

The previous parts of this Petition have shown that California's interests "are substantially different in nature or magnitude than those prevailing in the United States generally" (pages 5-19) and that the benefits of the standards, both to individual consumers and to the State as a whole, are substantial (pages 19-26). Now, in this part of the Petition, we demonstrate that the standards are preferable to the available alternatives: rebates and accompanying educational efforts, other non-regulatory programs, and "reliance on reasonably predictable market-induced improvements in efficiency" (i.e., doing nothing).

[64] 42 U.S.C. section 6297(d)(1)(C)(i)-(ii).

Before turning to specific alternatives, we emphasize again that the California Legislature has required the Energy Commission to adopt the RCW standards.[65] DOE should be very hesitant to second-guess the determination, by the elected governing body of the largest State in the Union, that the standards are necessary.

1. Rebates

In the Energy Commission's rulemaking proceeding in which the California RCW standards were adopted, the Association of Home Appliance Manufacturers ("AHAM") encouraged the Commission to consider rebates (and accompanying consumer education) as an alternative to the then-proposed standards.[66] This option is incapable of achieving the results of the adopted standards and would be substantially more expensive.

For several reasons, rebates and education would not achieve the same RCW water savings as the standards. The primary reason is that existing rebate and education programs have fallen far short of achieving full *energy* efficiency in the RCW market (even though clothes washers have been the subject of rebates for both energy efficiency and water efficiency for a number of years); given that track record, it is unrealistic to believe that such programs would be able to accomplish much more for *water* efficiency. For a decade there have been vigorous and sustained RCW energy- and water-efficiency rebate and education programs, including the federal Energy Star program, utility rebates and promotion, and manufacturer marketing. Yet as Figure 2 shows, despite those programs, high-energy-efficiency (i.e., Energy Star rated) RCW account for only 39 percent of the California market as of the end of 2003.

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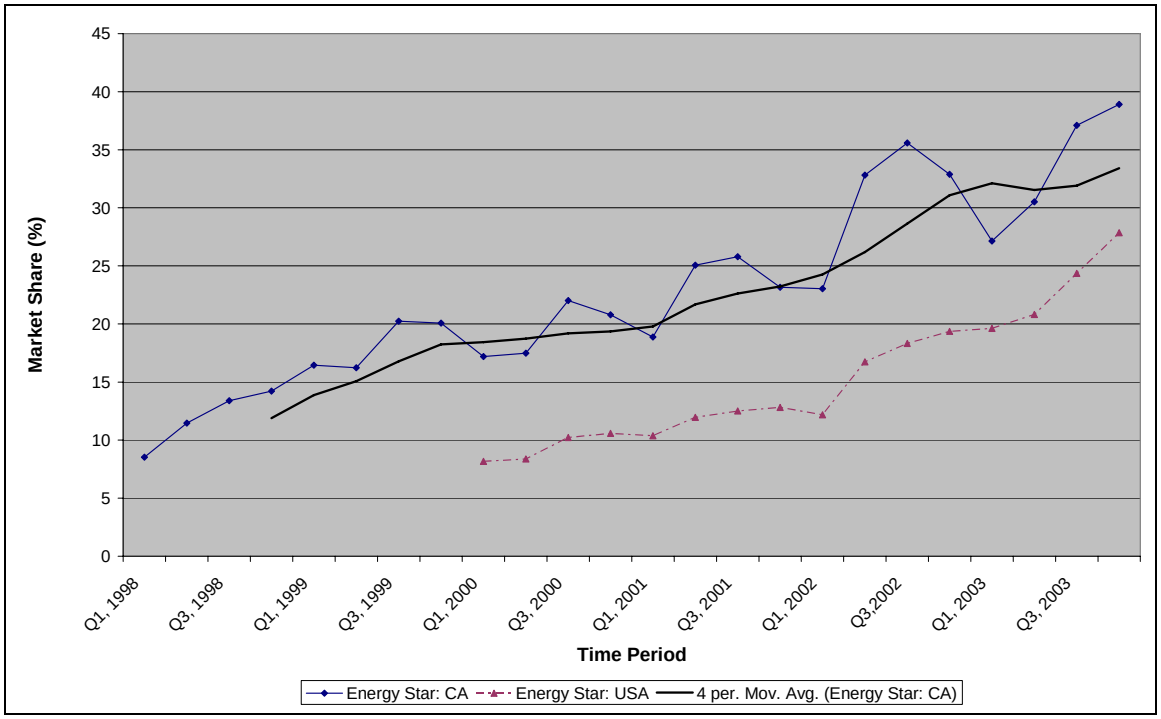
[65] California Public Resources Code section 25402(e)(1).

[66] CEC Docket No. 03-AAER-01 (RCW), Hearing Transcript, October 15, 2003, p. 63, (www.energy.ca.gov/appliances/documents/2004-12-15_TRANSCRIPT.PDF).

Figure 2: Energy Star Washer Market Share: U.S. and California [67]



While they have been effective in initiating market transformation, rebate and education programs were neither designed nor expected to fully transform the entire market for high-energy-efficiency RCW in California. Thus it is unrealistic to expect that continuation of similar rebate and education efforts could achieve a market share of high-*water*-efficiency RCW substantially higher than the 39 percent level achieved for energy efficient washers (which is well above today's approximately 30 percent market share for washers with less than 8.5 WF).[68] On the other hand, the California standards, if given a waiver by DOE, will achieve a 100 percent market share.

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[67] www.energystatr.gov/ia/partners/manuf_res/2003_appliance_sales-data.xls (03/09/2004).

[68] Pacific Gas & Electric Company, SMUD, and the City of Austin offer rebates for Energy Star RCW. In the first half of 2004, about 75 percent of their 19,000 rebates were for machines with water factors at or below 8.5. (Consortium for Energy Efficiency, memorandum, July 21, 2004, Chart 4.) (The California data dominates the sample, so the City of Austin results do not bias the findings.) Assuming that Energy Star models constitute around 40 percent of the market (see Figure 2), then around 75% x 40% = 30 percent of the current market is for RCW with WF of 8.5 or less. About half of the rebates were for machines with water factors at or below 6.0 (*id.*), which suggests that such machines have a market share of around 50% x 40% = 20 percent.

Moreover, if rebate and education programs were reconfigured expressly to transform the entire market, rebates would have to be very large – prohibitively expensive when compared to standards. That is because current rebates are generally sized to encourage acceptance of new technologies by "early adopters," not to push products into the hands of "technology laggards." Common sense, and real-world retailer experience, indicates that rebates that at least *fully* reimburse consumers for the incremental costs of high-water-efficiency machines would be required in order to achieve anything close to a 100 percent market share for high-water-efficiency washers. For example, market research by the Northwest Energy Efficiency Alliance ("NEEA") has documented that retailers believe that they could sell efficient washers, with an increased cost of $200, to no more than one-third of buyers, if lower-cost, less-efficient models were also an option.[69] This is despite the fact that such an incremental cost is more than justified by savings on a net present value basis for consumers. Thus, rebates sized to match the full incremental cost would be required for voluntary programs designed to impact the majority of the "laggard" market.

The costs of such "super" rebates would be very high. Even the lowest-cost Energy Star-rated washer (which is not particularly water-efficient) is over $100 more expensive than the average washer;[70] most water-efficient washers – many of which include other higher-end features – currently cost several hundred dollars more than baseline washers.[71] These high costs for most water-efficient models appear to be the result of manufacturers' lack of motivation to "unbundle" water efficiency – that is, to provide low-cost, high-water-efficiency washers without additional "bells and whistles." Currently, high water efficiency is viewed as an amenity for which customers are willing to pay extra; this translates to profitability for manufacturers. In the absence of standards, therefore, we see no evidence that incremental costs will

[69] "Market Progress Evaluation Report: WashWise Program". Northwest Energy Efficiency Alliance, Portland, OR. Report Number E98-003, July 1998. Page iv.

[70] "Comments of PG&E Regarding Proposed Residential Clothes Washer Water Factor Standards (CEC Docket No. 03-AAER-01) (RCW)" December 2, 2003, Pacific Gas and Electric Company, p. 3.

[71] In its November 11, 2003 comments in the CEC's rulemaking proceeding (CEC Docket No. 03-AAER-01)(RCW), AHAM included shipment weighted price estimates for washers meeting different WF levels in 2004. Then-current baseline product pricing was shown as the mid-three hundred dollar range versus just over $1,000 for washers meeting 8.5 and 6.0 WF levels. Thus, AHAM data suggests a shipment-weighted incremental cost of over $600 in 2004.

drop substantially in the near term, especially with the availability of rebates, which allow manufacturers to maintain large margins on these high-end models.[72]

In order to compare the relative costs of standards and rebates, we modeled the cost of providing typically-sized rebates (assuming a baseline of 12 WF[73]). First, we conservatively assumed that the future average incremental cost to customers for an 8.5 WF washer would be $290, in the absence of the California standards.[74] Second, we added utility administrative costs (when utilities pay rebates, they must expend at least $30 to 40 or more per washer for administration). Third, we assumed that participation rates in water and energy utility programs are, respectively, 40 and 50 percent of all eligible washer sales in California. Weighted average combined costs per eligible washer to utilities and consumers were then calculated. The results are shown in Table 7 below: taken together, without the proposed standards in effect, customers and utilities would have to contribute $388 per rebated washer to reach the 8.5 WF level. If all eligible washer purchases resulted in rebates from both water and energy utilities, the average total cost would be even higher ($513). Moreover, as we previously noted, even at this relatively high cost, the rebate program would not transform the entire California market. *In contrast, the costs of the standards, which achieve 100 percent market penetration, are only $66 (for the 8.5 WF standard) and $130 (for the 6.0 WF standard).* (See pages 21, 23 above.)

[72] In the Technical Support Document for the 2000 RCW rulemaking proceeding, DOE noted that manufacturer data suggested profit margins of more than 10 percent for horizontal-axis washers (versus 6.2 percent for baseline washers). U.S. Department of Energy, 2000 Final Clothes Washer Final Rule Making-Technical Support Document, Chapter 11. Manufacturer Impact Analysis, p. 11-26 (www.eere.energy.gov/buildings/appliance_standards/residential/clwash_0900_r.html).

[73] We used a baseline of 12 WF because that is the rounded value set forth by AHAM in the CEC proceeding that adopted the RCW standards. (CEC Docket No. 03-AAER-01 (RCW), Hearing Transcript, October 15, 2000). (www.energy.ca.gov/appliances/documents/2004-12-15_TRANSCRIPT.PDF).

[74] $290 is a conservative estimate of incremental cost in the absence of a standard. According to AHAM's "2007 Estimated Washer Cost vs. Water Factor Cost Ranges and Median Price Point for Industry" (AHAM, Nov. 11, 2003 comments in CEC Docket No. 03-AAER-01 (RCW), attachment 2), the incremental cost of an 8.5 WF washer in 2007 would be $250 and the incremental cost of a 6.0 WF washer in 2007 would be $837. In order to be conservative, we based our incremental cost estimate ($290) for an 8.5 WF washer on the lowest published price ($629) for a washer with a water factor below 6.0 found at the Sears website on July 28, 2003, versus the $340 average washer cost reported by AHAM in the CEC rulemaking proceeding.

Table 7: Costs of Rebate Programs for Consumers and Utilities

Cost Factor	Amount	Participation Rate	Weighted Amount
Water utility administrative costs	$35[75]	40%	$14
Energy utility administrative costs	38[76]	50%	19
Water incentive	75	40%	30
Energy incentive	75	50%	35
Total Utility cost	223		98
Incremental retail price	290	100%	290
Total cost	$513		$388

The California Urban Water Conservation Council ("CUWCC") is a collaborative of water agencies, other government entities, non-governmental organizations, and businesses that has been working on water use efficiency in California for 15 years. The council has noted: "The urban water purveyors of California cannot financially support rebate programs to convert the market share of water efficiency washers to the level necessary to eliminate the water wasting clothes washers in the market."[77] However, if DOE grants this Petition and allows the California standards to take effect, manufacturers would face an immediate demand for lower-cost products (probably meaning a more modest feature package) that meet the standards. The entire history of price impacts resulting from appliance efficiency standards strongly supports our view that the incremental retail price for washers that meet the new

[75] Estimated cost is the center of the cost range ($30 to $40) provided in conversation with Tom Pape on behalf of CUWCC.

[76] Estimated processing cost for PG&E based on overall Residential Retrofit Rebate Program filings to the CPUC as shown in "2002 Energy Efficiency Program Selection R. 01-08-028:Energy Efficiency Proposal, Statewide Residential Retrofit Single-Family Energy Efficiency Rebates". Pacific Gas and Electric Company, December 2001.

[77] "Projected Water Demand Reductions Derived From CEC Proposed Water Factor Standards", California Urban Water Conservation Council, Sacramento, January 21, 2004, p. 2 (www.cuwcc.org/Uploads/hotnews/CEC_HEW_Testimony_04_01_21.pdf).

standards will be much lower than the spread between the price of baseline washer and efficient washers prior to the standards taking effect.[78]

The bottom line is that rebate and education programs would be several times more expensive than the standards. Moreover, savings from such programs would not persist after termination, so additional expenses would be needed to prevent "backsliding."[79] Furthermore, all costs of rebate and education programs ultimately would have to be passed back to Californians in their energy and water rates. The California RCW standards are much less expensive and will save much more water.

2. Other Non-Regulatory Programs

Of course, rebate and education programs are not the only alternatives to standards. But as DOE itself found, in assessing numerous alternatives in its 2000 residential clothes washer rulemaking proceeding, none could achieve more than a small fraction of the savings from standards. DOE considered a very wide range of potential programs, including such activities as mass government purchases and various subsidies. The results were discouraging:[80]

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[78] Larry Dale, et. al. "Retrospective Evaluation of Declining Price for Energy Efficiency Appliances."

[79] If rebate funds became unavailable, the customer research suggests that market share for efficient washers would fall significantly.

[80] U.S. Department of Energy, 2000 Final Clothes Washer Final Rule Making-Technical Support Document, Regulatory Impact Analysis, September 2000, p. RIA-12, Tables RIA1 and p. RIA-13, RIA2.

Table 8: Savings from Other Non-Regulatory Programs

Alternative Program	Description	Water Savings (trillion gallons)	Source Energy Savings (Quads)	NPV (billion 1998$)
Early replacement with existing efficiencies	6 year program; assume 50% increase in early replacement sales with current market efficiency	0.0006	0.004	0.025
Mass government purchases	6 year program; assume 25% of replacement sales in HUD public housing households are high efficiency units	0.013	0.006	0.019
Enhanced public education	6 year program; assume effects are equivalent to $39 financial incentive	0.054	0.026	0.079
Low income and senior subsidy	6 year program; 25% subsidy of cost for MEF > 1.257 units; assume 28% of households participate	0.065	0.031	0.095
Consumer tax credits	15% tax credit; assume 60% of consumers participate	0.085	0.041	0.125
Consumer rebates	Rebate of 15% of the cost of high efficiency (35% level) units	0.150	0.072	0.220
Early replacement with 35% efficiency level	6 year program; assume 15% increase in early replacement sales with high efficiency units	0.161	0.078	0.238
Manufacturer tax credits	$50 to $100 credit per unit for two efficiency tiers (MEF 1.26 and 1.42)	0.299-0.666	0.153-0.330	0.217-0.756
Voluntary efficiency targets	10 year delay in start date of standards	6.81	3.09	8.54
Voluntary efficiency targets	5 year delay in start date of standards	9.97	4.55	12.38
Mandatory standards	Proposed negotiated standard	11.59	5.52	15.33

Thus according to DOE, none of the non-standards (including rebates and education) alternatives are capable of delivering anything remotely approaching the savings that a standard would produce. Only "voluntary targets" – which are actually nothing more than a "proposed negotiated standard," but with a delayed effective date – could come anywhere close to delivering the same amount of savings.

It is true that the California standards at issue in this Petition are different than those considered in DOE's analysis. Nevertheless, because DOE was considering the same appliance, the technical issues and market barriers are quite similar. Therefore, we believe that DOE's analysis – which, again, shows that alternatives can achieve only a few percent of the savings from standards – is a reasonable proxy for the California standards assessment. California's adopted standards are clearly the most successful strategy – with no close alternative – for cost-effectively acquiring water savings and ensuring that the savings are persistent over time.

3. "Reasonably predictable market-induced improvements in efficiency."

It would be a serious error for California to rely on – or for DOE to force California to rely on – "reasonably predictable market-induced improvements in efficiency" to produce the water and energy savings that the RCW standards will achieve.[81] In the RCW rulemaking proceeding completed in 2000, DOE estimated that the average RCW at that time had a 13.3 WF, and DOE predicted, on the basis of data supplied by AHAM and individual RCW manufacturers, that the average WF in 2007 would be around 7.0.[82] As a result of the trillions of gallons of water savings implicit in DOE's prediction, manufacturers strongly opposed including water efficiency requirements in the federal RCW standard on the ground that the energy standard alone would deliver the water savings. Unfortunately, DOE's prediction has failed to materialize. AHAM recently estimated that shipment-weighed average water factors would be approximately 10.8 and 10.4 in 2004 and 2007, respectively, in the absence of State standards – far from the 7.0 WF prediction.[83]

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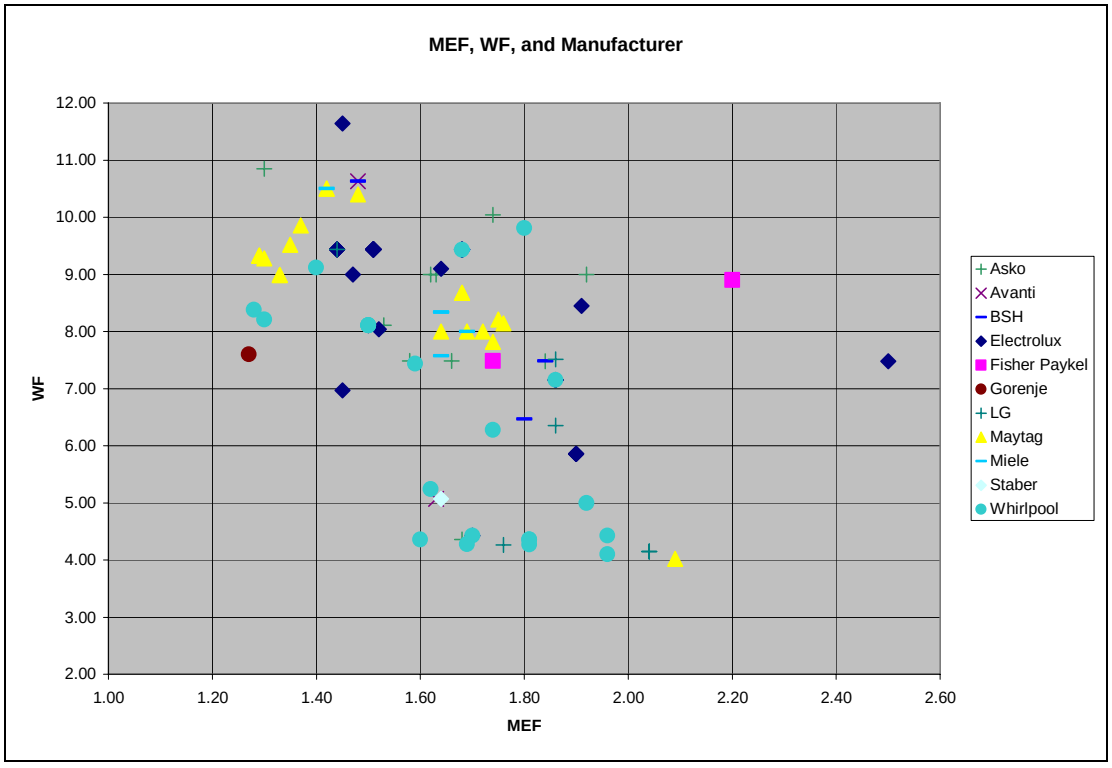
[81] See 42 U.S.C. section 6297(d)(1)(C)(ii).

[82] "Final Rule Technical Support Document (TSD): Energy Efficiency Standards for Consumer Products: Clothes Washers" U.S. Department of Energy, Washington, DC 20585, December 2000, Chapter 4, Engineering Analysis, pp. 4 - 5.

[83] CEC Docket No. 03-AAER-01 (RCW), Hearing Transcript, October 15, 2003, p. 47 (www.energy.ca.gov/appliances/documents/2004-12-15_TRANSCRIPT.PDF).

What appears to have happened is that although there were some modest gains in water efficiency as a result of the 2004 federal RCW energy standard, manufacturers have decided to meet the federal standard with products having lower energy use but only marginally improved water efficiency. This is a natural result of the fact that there is little correlation between energy efficiency and water efficiency. The Consortium for Energy Efficiency ("CEE") recently completed a comprehensive analysis of residential washer rebate program data collected from numerous water and energy utilities participating in its Residential Clothes Washer Initiative. Figure 3 below depicts the water factor and modified energy factor for each washer model rebated through the 2003 programs analyzed by CEE.[84] The data shows that there is only a modest correlation between water efficiency and energy efficiency, and indicates that "reasonably predictable market-induced improvements in [water] efficiency," even when driven by federal energy standards, would not deliver the majority of the savings potential from the California standards.

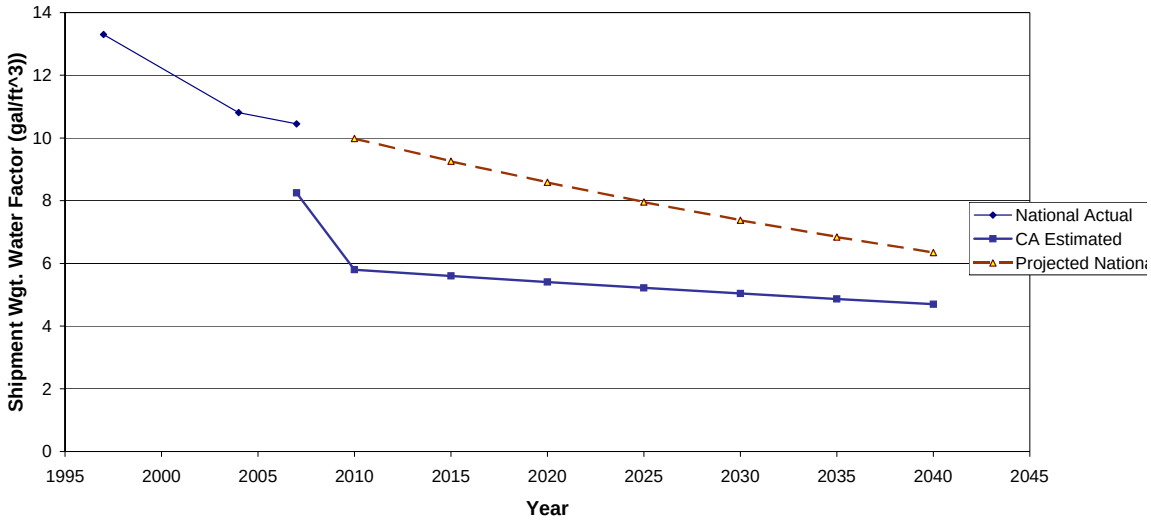
Figure 3: Correlation Between MEF and WF



[84] Rebecca Foster, Consortium for Energy Efficiency, Memo to CEE Residential Appliance Committee, July 21, 2004. Page 15.

We assessed the magnitude of the lost water savings were California to rely on market-induced improvements instead of its adopted RCW standards. Figure 4 below shows our optimistic estimate that "reasonably predictable market-induced improvements in efficiency" would produce an average annual reduction of 1.5 percent in WF (see the upper line in the figure). This is somewhat lower than the estimated average WF reduction of about 2.4 percent over the 10 years leading up to 2007. We estimated a slower future rate than the rate of the last ten years because, as noted above, the federal RCW energy standard did produce some early reduction in WF but those gains are leveling off, and in a "market-induced improvements" scenario there would be no other factors aggressively driving WF downward. For the California standards scenario (the bottom line in the figure), we assumed WF reductions to proceed at approximately 0.7 percent annually. After the implementation of the 2010 standard, natural market-induced efficiency improvements would be expected to be lower because incremental improvements would be relatively more expensive, and because voluntary program opportunities and therefore activities would be lower. Based on those assumptions, we estimate that for those washers sold between 2010 and 2040, and operated between 2010 to 2054, the cumulative differential in water use between market-induced efficiency improvements and the California standards would amount to over 1.2 trillion gallons of water. At the today's average California water price of $ 0.0032 per gallon, this would be worth almost four *billion* dollars. That would be much too high a price for California to pay for a DOE denial of this Petition.

Figure 4: Projected U.S. (Unregulated) Water Efficiency Versus Water Efficiency Under the California Standards



IV. Potential Burdens on Industry

DOE may not grant a preemption waiver if it finds "that interested persons have established, by a preponderance of the evidence, that [the] State regulation will significantly burden manufacturing, marketing, distribution, sale, or servicing of the [appliance] on a national basis." (42 U.S.C. section 6297(d)(3).) In determining whether to make such a finding, DOE must consider all relevant factors, including:[85]

> (A) the extent to which the State regulation will increase manufacturing or distribution costs of manufacturers, distributors, and others;
>
> (B) the extent to which the State regulation will disadvantage smaller manufacturers, distributors, or dealers or lessen competition in the sale of the covered product in the State;
>
> (C) the extent to which the State regulation would cause a burden to manufacturers to redesign and produce the covered product type (or class), taking into consideration the extent to which the regulation would result in a reduction—
>
> > (i) in the current models, or in the projected availability of models, that could be shipped on the effective date of the regulation to the State and within the United States; or
> >
> > (ii) in the current or projected sales volume of the covered product type (or class) in the State and the United States; and
>
> (D) the extent to which the State regulation is likely to contribute significantly to a proliferation of State appliance efficiency requirements and the cumulative impact such requirements would have.

This section of the Petition shows, in summary fashion, that the California standards will for the most part impose no such burdens at all, and that any burdens that might materialize would be insignificant. If other parties present evidence of such burdens, we will respond in detail in rebuttal comments.[86]

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[85] 42 U.S.C. section 6297(d)(3).

[86] See *id.* section 6297(d)(2).

A. Manufacturing and Distribution Costs

In its RCW rulemaking, DOE found that the benefits of federal standards would outweigh any negative manufacturer impacts, even though DOE assumed that horizontal-axis technology (with a water factor between 7 and 8) would be used to meet the 2007 federal standards.[87] DOE estimated an incremental manufacturing cost of $150 to meet that standard.[88] Once performance in the 7 to 8 WF range is achieved in a horizontal-axis configuration, it is doubtful that there is a significant additional manufacturing cost required to achieve a water factor of 6.0.[89] Given technological developments since the late 1990s, and DOE's history of overestimating the costs of standards[90], it is likely that the manufacturing cost impacts of the California standards will be even smaller than those anticipated by DOE.[91]

These estimates are supported by current facts. Most appliance manufacturers, both small and large, already make high-efficiency, horizontal-axis washers; the May 16, 2005 CEE listing shows 97 models under 20 different brands at a 7.5 WF or better, and 55 models at 5.5 WF or better. As is discussed in footnote 70 above, approximately 20 percent of California sales of washers already comply with the 2010 standard of 6.0 water factor, and approximately 30 percent already meet the 2007 standard of 8.5. Clearly then, significant investments in research and development, and production infrastructure, have already been made.

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[87] "Final Rule Technical Support Document (TSD): Energy Efficiency Standards for Consumer Products: Clothes Washers" U.S. Department of Energy, Washington, DC 20585, December 2000, Engineering Analysis, p. 4-5.

[88] By the time the final rule was published in 2001, the DOE had become aware that vertical-axis products meeting the 2007 levels were possible and had an incremental manufacturer cost of only $75. (See 66 Fed. Reg. 3315 (Jan. 12, 2001).)

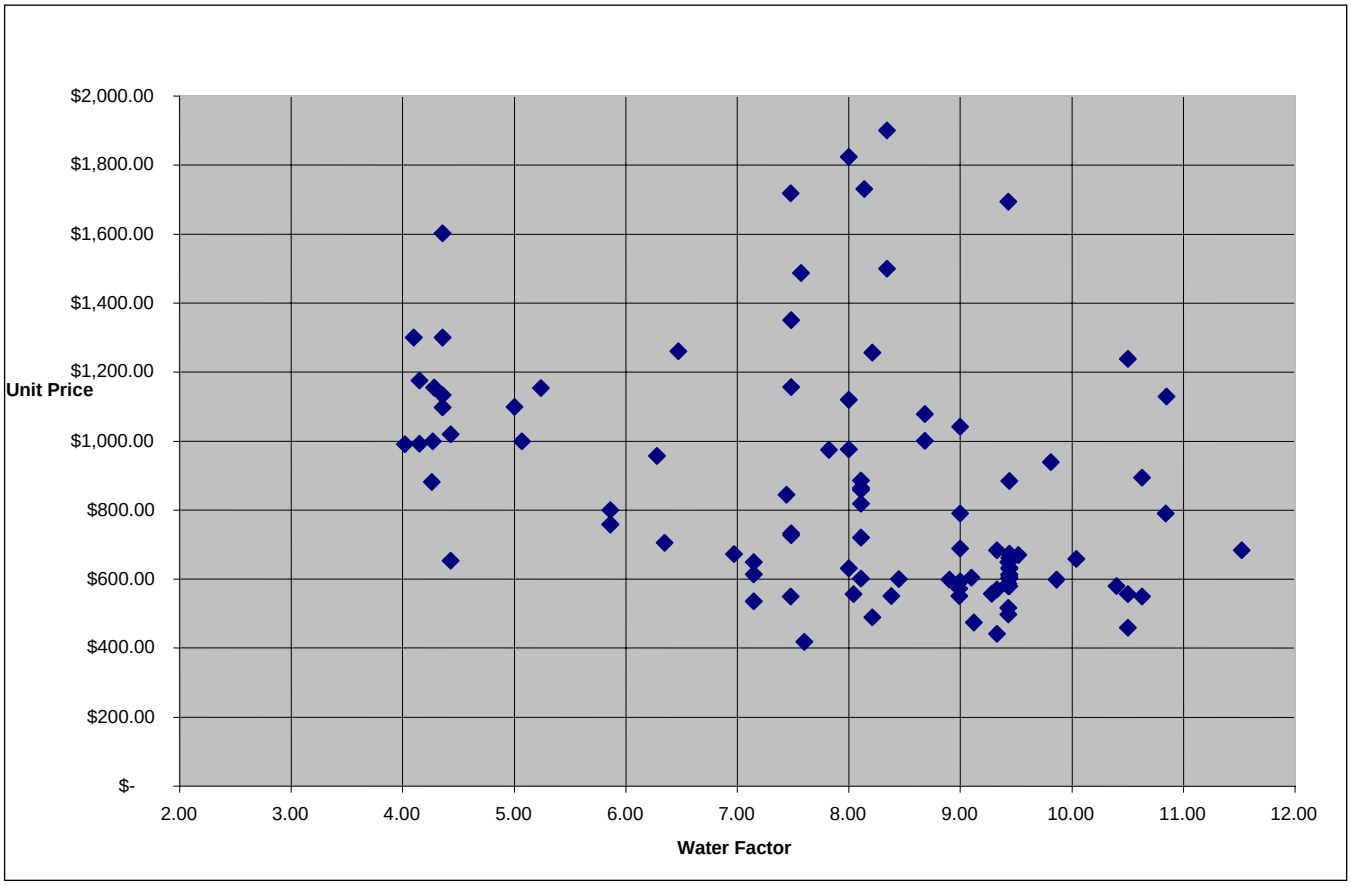
[89] Figure 5 below depicts the broad distribution of retail prices of various washers rebated in utility programs in 2003. AHAM data presented in the Energy Commission's rulemaking proceeding also showed minimal price differences among models meeting different low water factors.

[90] Larry Dale et al, "Retrospective Evaluation of Declining Price for Energy Efficiency Appliances," 2000, Lawrence Berkeley National Laboratories, published in American Council for an Energy Efficient Economy Summary Study proceedings, p. 9.68.

[91] "Final Rule Technical Support Document (TSD): Energy Efficiency Standards for Consumer Products: Clothes Washers" U.S. Department of Energy, Washington, DC 20585, December 2000, Engineering Analysis, p. 4-8.

Indeed, as we have previously noted, there appears to be little correlation between water efficiency and price. Figure 5 below presents CEE's analysis of costs versus water factor. Down to a 7.0 WF, there seems to be no correlation at all: prices at the top end of the price range are between 3 and 5 times higher than at the bottom of the range at all water factor levels. Below a 7.0 WF, the very low-cost models disappear, but there is still very little correlation between water factor and price. It is clear that factors other than water efficiency are the primary determinants of price.

Figure 5: Correlation Between WF and Price



Moreover, given the current California 30 percent market share for washers with water factors below 8.5, and the fact that California represents about 10 percent of national sales, the 2007 California standards would affect only about 7 percent of U.S. washer sales. Thus, to the extent that additional manufacturing, distribution, or other costs would be required, they would likely be very small. And any increased costs could well be more than made up in increased revenues: "[s]tandards that

enforce higher product quality and consequent higher product costs can contribute to enhancing the gross revenues of the industry."[92]

B. Effects on Smaller Manufacturers, Distributors, and Dealers, and on Sales Competition in California

Two factors – the observed effects of the federal RCW energy standard, and the current California market for high-water-efficiency RCW – strongly indicate that the California standards are very unlikely to have an adverse effect on smaller members of the appliance industry or on sales competition.

Recent years' innovations resulting from, or at least occurring simultaneously with, the DOE energy standard for RCW have resulted in a proliferation of technologies and features. In 2001, when the federal standard was adopted, there were more than 60 qualified products on the CEE product list. As of September 15, 2004, even though the CEE qualifying criteria had become more strict, the number of qualifying models grew to more than 130. In addition, despite the centralization that occurred in many businesses sectors, particularly in the appliance industry, in the late twentieth century, the number of manufacturers selling in the U.S. in the last five years has increased significantly. There is no reason to expect the California standards to have an adverse impact on manufacturers or on sales competition.

With regard to sales competition in California, we have previously noted that most manufacturers, large and small, already have products available that meet the standards, so it seems most likely that sales competition will continue to be healthy when the standards take effect. Indeed, while in 2003 there were three manufacturers with products at or below 5.5 WF, there were nine by mid-2004.[93]

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[92] Robert Van Buskirk, "Econometric Modeling of the Effects of Energy Efficiency Standards on Appliance Shipments," 2000, Lawrence Berkeley National Laboratories, published in American Council for an Energy Efficient Economy Summary Study proceedings. p. 9.381.

[93] Rebecca Foster, Consortium for Energy Efficiency, memorandum to CEE Residential Appliance Committee, August 12, 2004.

C. Reductions in Available Models, or Sales, in the U.S. and in California

Significant reductions in available models, or in sales, are likely only if manufacturers would be unable to manufacturer enough products, or if consumers would be unlikely to buy them. Neither contingency will occur. Based on the availability of products in 2004 that already meet both the 2007 and the 2010 California standards, the supply of products will not constrain sales in California or anywhere else in the U.S. Moreover, consumers will buy the products. We have already shown that price increases will be modest, and at pages 42-49 below we show that the standards will not result in significant changes in product performance or features, so there is no reason to expect consumers not to buy the products. Moreover, even if prices were to increase substantially more than we expect, sales would probably still not be significantly affected. That is because, as DOE's own analysis shows, the demand for clothes washers is generally inelastic: "[H]ouseholds that currently own clothes washers will likely continue to purchase new ones when needed, even with large price increases. For example, using the upper bound elasticity estimate for all current clothes washer owners, a 63 percent price increase from $400 to $650 results in only a 10 percent decrease in purchases for this sector of the market."[94] No doubt manufacturers would define a 10 percent decline in California sales as a significant reduction, but that presumes a 63 percent retail price increment, which far overstates the likely price increase; furthermore, even in that worst-case scenario, a 10 percent reduction in California sales would result in a decline of only one percent of national sales, which is well within the range of annual sales variability.

D. Proliferation of State Standards

We are unaware of any other States that are considering RCW water factor standards. To the extent there are any, other States would most likely adopt the California standards. If that happened, manufacturers, distributors, and other industry members would be able to spread any costs from standards over a larger sales volume, thereby reducing per-unit costs. This would be a benefit to the industry.

[94] U.S. Department of Energy, 2000 Final Clothes Washer Final Rule Making-Technical Support Document, Appendix J, p. J-45.

V. Potential Effects on Consumer Utility

DOE may not grant a preemption waiver if it finds "that interested persons have established, by a preponderance of the evidence, that the State regulation is likely to result in the unavailability in the State of performance characteristics (including reliability), features, sizes, capacities, and volumes that are substantially the same as those generally available in the State at the time of [DOE's] finding . . . ."[95] This part of the Petition shows, in summary fashion, that the California standards will not result in any reduction in consumer utility. If other parties present evidence of such unavailability, we will respond in detail in rebuttal comments.[96]

A. Performance Characteristics

Other than an increase in water efficiency, there will be no significant changes in performance characteristics, including reliability, due to the California standards.

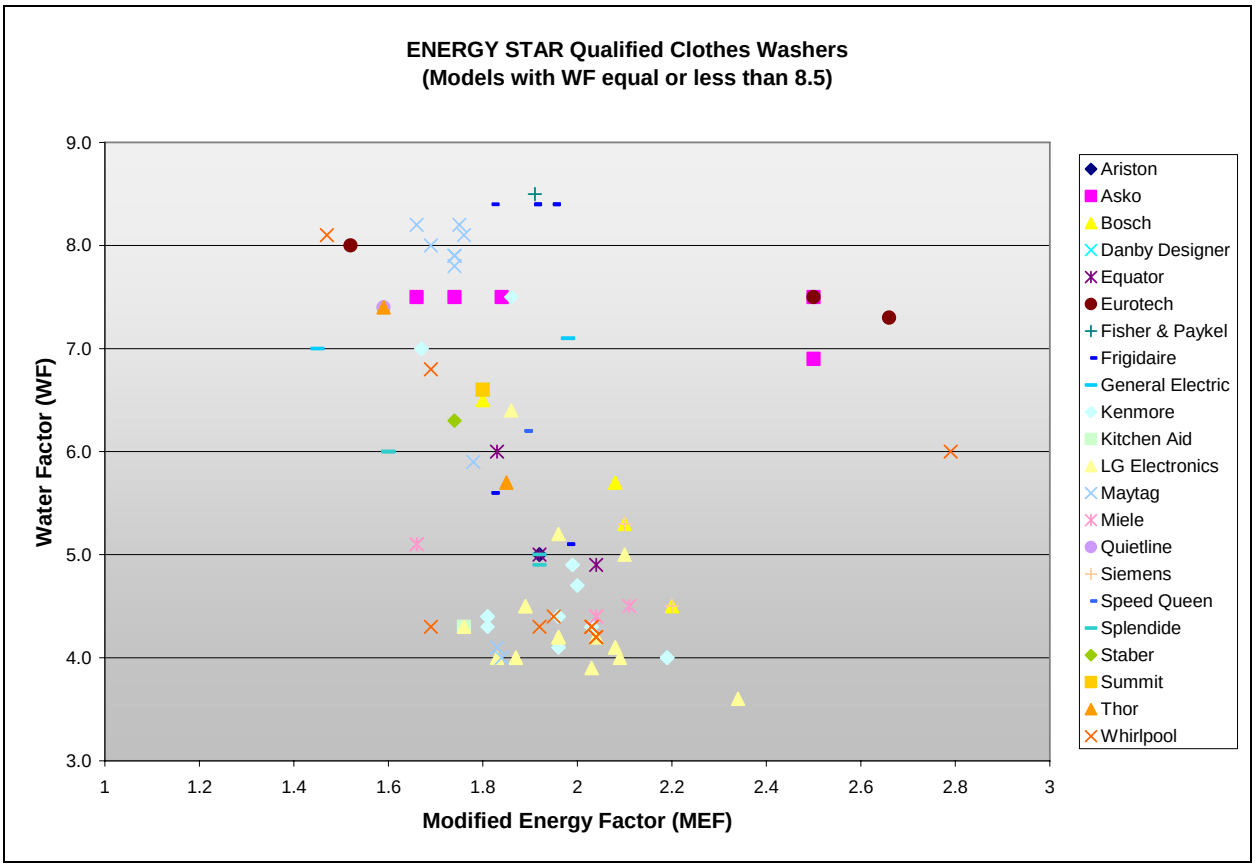
In the last half decade, a variety of new high efficiency washers have been introduced into the market by a growing number of manufacturers. Figure 6 shows that as of February 2005, 78 out of the 182 Energy Star RCW models have water factors at or below 6.0 – the second tier of the California standards. That clearly demonstrates that the standards are feasible and that consumers will have access to complying machines.

There is no reason to expect high-water-efficiency machines to be less reliable than the models available today. In general, it is not unusual to see early reliability problems in new platforms as manufacturers work the bugs out of new concepts, and because the DOE RCW energy standard already requires substantial changes to washer designs, especially in 2007, even without a California standard one may expect a certain amount of initial reliability issues as new types of products are rolled off the line for the first time. However, it seems unlikely that the California standard would significantly add to this possibility. We have no information suggesting otherwise, and currently-available high-water-efficiency RCW are often high-value products ($1,000+) whose customers demand good reliability.

[95] 42 U.S.C. section 6297(d)(4).

[96] See *id.* section 6297(d)(2).

Figure 6: Energy Star List as of 2/16/05: MEF versus WF by Brand



Moreover, to the extent that manufacturers meet the California standards with horizontal-axis technology, this would likely increase cleaning performance. Many assessments suggest that cleaning performance is better with horizontal-axis washers compared to typical top-loading vertical-axis washers (see pages 46-48 below).

B. Consumer Features

There is no evidence that the California standards will reduce the availability of important washer features. A variety of research shows acceptance for high efficiency washers. For example, as we explain in more detail below, extensive national focus group and conjoint analysis work was conducted by the DOE during the 2000 federal rulemaking process with a cross section of American consumers, and it provided results with high levels of statistical confidence. Other consumer

research by the NEEA and the San Diego County Water Authority ("SDCWA") confirms the acceptance of high-efficiency washer technology.

As part of the 2000 DOE proceeding on clothes washers, DOE conducted consumer research regarding clothes washer feature preferences.[97] Through focus groups, the DOE established a list, shown in Table 9 below, of features and attributes considered by consumers in evaluating washers. Few if any of the 60+ attributes would be affected by the California RCW standards. Washers already meeting both the 8.5 and 6.0 WF levels offer a similar selection of features.

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[97] "Final Rule Technical Support Document (TSD): Energy Efficiency Standards for Consumer Products: Clothes Washers" U.S. Department of Energy, Washington, DC 20585, December 2000, App. J., p. J-46; see also *id.*, section J.10.

Table 9:
Washer Attributes Listed as Important in DOE's Consumer Analysis

Attribute	Frequency in Top 5	Percentage Out of 429
Price	241	56.2%
Energy and Water Costs Energy Efficiency	205	47.8
Capacity	187	43.5
Multiple Wash Cycle Options	152	35.4
Water Temperature Options	116	27.0
Machine Size	113	26.3
Brand	89	20.7
Load Size Options	82	19.1
Reliability	73	17.0
Quiet Operation	65	15.2
Warranty	65	15.2
Door Placement	58	13.5
Color	56	13.1
Durability	52	12.1
Simple Settings	43	10.0
Bleach Softener Dispenser	33	7.7
Machine Design	28	6.5
User Friendly Controls	27	6.3
Wash Time	26	6.1
Delicate Cycle	26	6.1
Agitated Speed	22	5.1
Availability of Service	21	4.9
Buttons & Dials	21	4.9
Gentle Cycle	19	4.4
Extra Rinse Cycle	18	4.2
Spin Speed	18	4.2
Heavy Duty Cycle	18	4.2
Rated Highly by Consumer Reports	17	4.0
Agitation (side to side or up-down)	13	3.0
Self-Cleaning Filter	13	3.0
Corrects Out-of-Balance	8	1.9
Tub Material (Rastic/Metal)	8	1.9
Washer/Dryer Combo	7	1.5
Control Labels	7	1.5
End of Cycle Signal	6	1.4
Soak Option	5	1.2
Detergent Cost Savings	5	1.2
Pre-Wash	5	1.2
Soap Dispenser	5	1.2
Ability to Re-Use Rinse Water	5	1.2
Safety	5	1.2
Time Remaining Indicator	5	1.2
Clear Instructions	4	0.9
Motor Quality/Size	4	0.9
Warning Lights	4	0.9
Add Clothes Mid Cycle	3	0.7
Removable Tub	3	0.7
Gas/Electric	3	0.7
Horizontal/Vertical Axis	2	0.5
Unit Removable	2	0.5
Hot Water Pressure	2	0.5
Spin Length	2	0.5
Connected to Water Softener	2	0.5
Heat Own Water	2	0.5
Lid Lock	2	0.5
Hand Washables	1	0.2
Door Size	1	0.2
On Wheels	1	0.2
Electrical Compatibility	1	0.2

Some manufacturers believe that the California standards will eliminate top-loading access to the washtub. That assertion ignores the fact that top-loading washers using a horizontal-axis (or other high-water-efficiency platforms) are already on the market; one U.S. manufacturer has been selling a top-loading, horizontal-axis washer for years, and the design is common overseas.[98] Moreover, door location is not important to the vast majority of consumers. As Table 9 shows, consumers ranked price, energy and water efficiency, and capacity as the most important features, with door placement listed as a "top five" attribute by only 13.5 percent of the survey participants. (Wash tub axis orientation was even further down the list.)[99]

In fact, before this most recent DOE RCW rulemaking, DOE had viewed front-loading and top-loading washers as two distinct product classes deserving of individual treatment in standards. During much of the rulemaking, however, DOE proposed to remove the separate subcategories, believing that there was no basis for maintaining separate classes for horizontal and vertical clothes washers.[100] This sentiment was supported by major appliance manufacturers both in the RCW rulemaking and in a different proceeding under the Federal Trade Commission, which in 2000 eliminated the distinction between front loading and top loading RCW in its energy performance labeling requirements.[101,102] Thus, DOE itself concluded that a top-loading feature does not by itself provide significant consumer utility.[103] This conclusion seems to be borne out by the large market share claimed by front-loading washers despite their higher price.

Moreover, many consumers *prefer* horizontal-axis machines. For example, in recent surveys by the SDCWA Voucher Incentive Program, 100 percent of participants responded that their high-efficiency washers (some of which were horizontal-axis)

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[98] The Energy Star list of residential washers updated 2/16/05 shows that the Staber HXW2304 has a water factor of 6.3 gallons/cubic foot.

[99] Final Rule Technical Support Document (TSD): Energy Efficiency Standards for Consumer Products: Clothes Washers" U.S. Department of Energy, Washington, DC 20585, December 2000, App. J, p. J-3.

[100] 65 Fed. Reg. 16134 (March 27, 2000).

[101] 66 Fed. Reg. 3322 (Jan. 12, 2001).

[102] 65 Fed. Reg. 16134 (March 27, 2000).

[103] Nonetheless, the DOE ultimately maintained the subcategory distinction because if felt that the two technology types had unequal potential for future efficiency improvements.

worked better than their old machines.[104, 105] Similar results were reported by the NEEA and its member utilities. They conducted customer satisfaction surveys as part of their WashWise residential clothes washer program in 1997 and 1998 and found that "[b]oth purchasers and retailers are very impressed with the RECW [resource-efficient clothes washers]. Purchasers rated the machines extremely high (95% to 99% very or somewhat satisfied) on a wide range of product attributes. A total of 91% would recommend their RECW to a friend. Retailers thought that RECWs cleaned clothes better (88%) and were worth the money (89%) at current incremental costs."[106] In fact, customer satisfaction was so high that NEEA stopped conducting surveys on that issue.

These extraordinarily high satisfaction levels were measured over five years ago when the selection of high-efficiency washers and their associated features were substantially smaller than it is today. As with the SDCWA participants, in the NEEA surveys owners of both top-loading and front-loading high efficiency washers were represented, but front-loading owners were a large portion of the survey population.

A DOE demonstration study in Bern, Kansas, implemented in the mid-1990s with cooperation from Maytag Corporation, also demonstrated substantial customer satisfaction with horizontal-axis machines:[107]

> Baseline washer performance data as well as customer washing behavior were obtained from data collected on the existing washers of more than 100 participants in this instrumented study. Following a 2-month initial study period, all conventional washers were replaced by high-efficiency, tumble action washers, and the experiment continued for another 3-month period. Based on measured data from over 20,000

[104] San Diego County Water Authority Residential Voucher Incentive Program, Fiscal Year 2004, Second Quarterly Report, October 1, 2003 – December 31, 2003, p. 12.

[105] San Diego County Water Authority Residential Voucher Incentive Program, Fiscal Year 2004, First Quarterly Report, July 1, 2003 – September 31, 2003, p. 12.

[106] Executive Summary, Pacific Energy Associates, Report #E98-003, "Market Progress Evaluation Report: WashWise Program," January 1998 (www.nwalliance.org/resources/reports/03ES.pdf).

[107] DOE, Energy Division, Bern Clothes Washer Study (1998, Oak Ridge National Laboratory) (www.energystar.gov/ia/partners/manuf_res/bernstudy.pdf).

> loads of laundry, the impact of the washer replacement on (1) individual customers' energy and water consumption, (2) customers' laundry habits and perceptions, and (3) the community's water supply and waste water systems were determined and are reported. . . . . [¶] The data and subsequent analyses also showed that across all loads, temperature settings, use of detergent and other additives, participants found the cleaning performance of the h-axis technology to be generally superior to their phase I v-axis washer irrespective of its age. . . . . [¶] The study showed that, on average, participants' overall satisfaction with the cleaning performance of the h-axis washer over their original v-axis washer was much improved. . . . . [¶] Participants appeared to be much more satisfied with the dryness of loads removed from the h-axis washer than from the typical, phase I v-axis washer.

Like the other studies discussed above, the DOE Bern study was based on first-generation front-loading products, and substantial innovation has occurred since that time, making the machines even more consumer-friendly.

Our final point with regard to customer utility concerns the argument that special needs customers must have top-loading machines, or that front-loaders are less "senior friendly" because the user has to bend over to load them. If this is truly a large concern, it is unclear why this does not appear also to be a problem for dryers. Moreover, because many models of front-loading washers can address the ease of access issue by using a tilted horizontal-axis (e.g. the Maytag Neptune), or by raising the washer onto a pedestal that can also conveniently serve as storage space, we believe that these arguments are without merit. We also note that front-loaders are more convenient for consumers in wheel chairs.

C. Sizes, Capacities, and Volumes

High-water-efficiency RCW have cabinet and tub sizes that are comparable to those available in less-efficient models. There is no evidence that the California standards will restrict or significantly affect the sizes, capacities, or volumes available in California.

Because there are very few horizontal-axis machines with tub sizes substantially below 1.6 cubic feet, it is possible that there may be fewer products available with small tub sizes after the 2010 6.0 WF standard takes effect, as a result of greater sales of horizontal-axis machines. However, there is no indication that small tub

size is a desired attribute per se. Our understanding is that the growth in sales of very small machines was a by-product of manufacturers' attempts to make stackable, vertical-axis washer-drier units that fit in apartments. Larger-volume, horizontal-axis washers with the same size and stack-ability attributes are now available and will be available in the 6.0 water factor range after the implementation of the 2010 standard. Furthermore, recent laboratory testing by Seattle Public Utilities confirms that larger-capacity, high-efficiency washers scale down their water use quite effectively for smaller load sizes, so potential efficiency impacts of this market change, if it occurs, would not be counter-productive.[108]

VI. Conclusion

California has unique and compelling interests in obtaining a waiver from preemption for its RCW standards. The standards were developed by the Energy Commission at the direction of the California Legislature, and they are needed to implement the State's water and energy policies and planning processes. The California standards are the best approach for achieving substantial water savings in residential clothes washers. They offer the most comprehensive, highest-persistence, lowest-burden solution of all of the available alternatives. The standards create economic and environmental benefits, do not place significant burdens on industry, and do not significantly restrict performance or features. We respectfully request that DOE grant a waiver from preemption.

[108] Personal communication with Dave Broustis, Seattle Public Utilities, August 12, 2004.